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ABSTRACT

This method of determining which elementary school to close involves the identification of a number of factors to be considered and the weighting of those factors according to importance. It involves five steps: establishing a precise reason or purpose for school closing, selecting factors to quantify this purpose, deciding on a weighting scheme to reflect emphasis, collecting data, and analyzing data and drawing up profiles of each school. The reason for school closure must be clear at the outset. Nine factors are usually of particular interest and can be easily calculated: building enrollment, building age, percent of enrollment decline by building, cost of building operation, efficiency of building operation, number of students moved, salaries, program facilities rating, and added transportation cost. After factors are weighted, scores can be reported by standard scores or by ranking. The method provides comparative objective data that has some content and construct validity and credibility. Its limitations include lack of clarity regarding number of factors to include, the necessity for recalculating all data with each school closed, problems with quantifying relevant factors, and lack of applicability to small school districts. A companion document explores further the rationale for the method. (Author/JM)

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Practical Aspects Of A Method Of Elementary School Closing

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Faced with the decision of identifying an elementary school for closing from among a field of several-to-many, a school administrator quickly discovers that there is virtually no existing methodology in accessible form. The American Association of School Administrators (1974) offers useful advise on the topic but stops short of a methodology.

This paper reports aspects of a method which appears to possess utility. Other papers describe the rationale of the method, and its technical characteristics (Puleo 1981 a,c).

General Description

Central to the method is a multi-factor design. That is, it views elementary school closing as a complex task requiring a coherent framework, and a set of comparative factors which operationally translate the particular reason for closing. Certain of these factors involve information readily available and in usable numerical form, e.g., enrollment, number of students impacted. Others may require designing rating scales, e.g., saleability of a building. The preferred procedure next calls for weighting the factors to reflect emphasis or importance. The results are then summed and/or cast in profile form for visual display. It is achnowledged that these results are not synonymous with a selection to close. Rather, their role is to bring an objective body of data with an established degree of validity and reliability to the decision-making process.

Details

The method involves essentially five steps: establishing the reason or purpose for closing, selecting factors which quantify this purpose, deciding upon a weighting scheme to reflect emphasis, data collection, and analysis and portrayal.

Establishing reason for closing. As with any evaluation project, the goal must be unambiguous at the outset. Whether or not this goal is formally converted into performance objectives, it is critical that the logic and intent become explicit. With school closing, the reason will influence the selection and weighting of factors. In effect, the factors and their weighting become the operational definition of "the most appropriate school to close".

The reason to close an elementary school can range from simple to complex. It can be a financial undertaking exclusively. It can combine finances with a long-range plan to phase-out older buildings. Or, it can interrelate finances with building age and the adequacy of program facilities. Each reason requires a somewhat different strategy of data collection and analysis.

Selecting factors. In theory, any factor expressed quantitatively can be used to represent a dimension of concern. Among a wide array of possible factors, nine appear to be of particular interest and are noted accordingly:

1) Building Enrollment. Lower enrollment would tend to render the school a more likely candidate for closing.
2) Building Age. This can be defined as the period of time from the year of construction, or, in cases of major renovations, from the year total square footage was increased at least 50 percent. Other things being equal, older facilities are stronger candidates for closing.
3) Percent of Enrollment Decline by Building. This offers a valuable clue

regarding locations of future decline. A period of time with stable attendance boundaries should be used. Special classes located within each building should be deleted. It stands to reason that the school showing the highest decline is a candidate for closing.

4) Cost of Building Operation. This gives an indication of the absolute or actual dollars used to operate the building. Possible costs included would be all energy costs - including water and telephone, custodial supplies and custodial salaries. That building with the greatest cost of operation is a strong candidate for closing.

5) Efficiency of Building Operation. This gives a somewhat different perspective on building cost. It can be defined variously as cost of building operation divided by square footage, by pupil enrollment, or by pupil capacity.

6) Number of Students Moved. What is the total number, for that particular school as well as any impacted by rippling, of students requiring movement? Naturally, we wish to mitigate the effects of closing by moving the fewest number of students.

7) Salaries. Net savings of teachers, administrators and clerical. Preliminary study indicates this factor accounts for 60-75% of total savings.

8) Program Facilities Rating. How adequate for program purposes are the various schools under study? Naturally, other things being equal, we wish to close the school with the poorest physical facilities.

9) Added Transportation Cost. This is the net of the added transportation to new, more distant locations minus the savings for closing after state aid reimbursement. The greater the added cost of transportation, the less likely we are to consider that school a prime candidate for closing.

Of these nine factors, all are direct numerical calculations with the exception of the rating of physical program facilities. This is a locally

developed scale which is described in detail elsewhere (Puleo 1981 d).

While these nine factors should provide a strong data-base which can be accomplished with relative ease, particular reasons may dictate additional factors, or a different combination. Other factors which may be considered are:

community reaction;

building saleability;

building rentability;

extent of program disruption.

Obviously, the need for designing measures of these factors opens up a research area of considerable interest to the educator.

Weighting scheme. The array of factors is next reviewed for relative importance. The significance of this step is that it mirrors logical emphases within the set of factors. It discriminates those factors which are regarded as very important from those regarded as less important. If the interest in closing an elementary school is principally financial, it would tend to follow that factors expressing this concern are weighted accordingly, e.g., 2.0 or 3.0 versus 1.0 for others.

Data Collection. Numerical values are assigned to all buildings under consideration for closing for all factors. Composite scores, which are simply the sum of weighted factors divided by the number of factors, are then calculated for each school. Investigation using both ranks and standard scores (T-scores) revealed that both techniques yielded the same practical conclusions. For ease of public understanding, reporting by ranks may be preferred. Caution should be exercised to insure, whether ranks or standard scores are used, that high and low scores have uniform meaning, e.g., scores below the average mean that the school should NOT be closed.

Analysis and portrayal. A profile can be plotted for each school on the individual factors as shown in Figure 1., and for purposes of summarization, all schools can be compared on the Composite Score as in Figure 2. In addition, a series of illustrative tables can be compiled highlighting particular areas of interest.

Advantages

The value of the method described appears to be on two levels. On the one hand, the administrator has comparative data in objective form as well as a conceptual framework which delimits and defines the task at hand. This provides a solid foundation for a variety of analyses. On the other, the approach is characterized by a degree of comprehensiveness that: 1) lends to the content and construct validity of the method; 2) provides the approach with a sense of credibility.

Limitations

Because of its preliminary nature, the method at this time can be employed only with recognition of this fact. In addition, specific limitations may exist, the effects of which in most cases are currently unknown.

For example, there is a lack of clarity regarding the number of factors to include. This leaves an uneasy feeling that something has been omitted, and may lead to compensatory attempts at overinclusion.

Also, the fact that only one school is identified may detract from its utility in instances where multiple closings are needed. As mentioned above, each application requires comparisons of one school with all others. If multiple schools are planned for closing, recalculation or recycling of the data is required after each single school is targeted. This recycling

characteristic incidently, would seem ideally suited for computer simulations.

In addition, at present there is some difficulty in quantifying relevant factors. Currently no scales exist to this writer's knowledge for elementary school saleability or rentability. Similarily, indications of community reaction lack formal study.

Lastly, because of the comparative nature of the method, it may be less suitable for smaller school districts. It would seem the method is most suitable to applications involving a larger number of schools. Study is required of its effects with small-scale applications, e.g., two or three schools.

References

American Association of School Administrators Declining Enrollment: What To Do. Arlington, Virginia: American Association of School Administrators, 1974.

Puleo, V. Rationale for the multifactor method of elementary school closing. Local paper, 1981 a.

Puleo, V. Technical aspects of the multifactor approach to elementary school closing. Local paper, 1981 c.

Puleo, V. A procedure to measure elementary school program facilities. Local paper, 1981 d.

Figure 1

ELEMENTARY SCHOOL PROFILE
FACTORS AFFECTING POSSIBLE CLOSING
SCHOOL: Anyschool

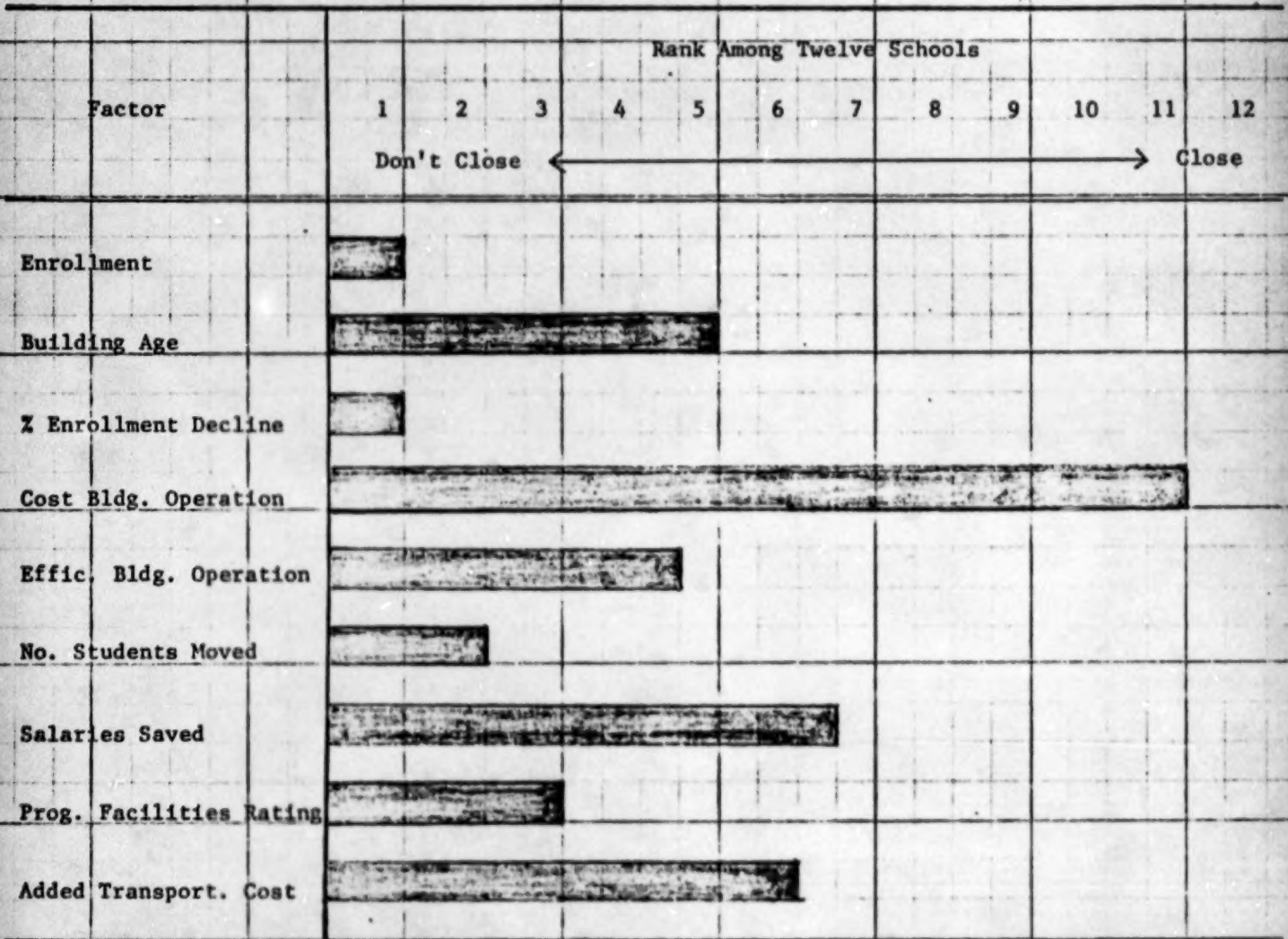

Figure 2

SUMMARY

AVERAGE OF RANKS OF NINE FACTORS AFFECTING POSSIBLE CLOSING